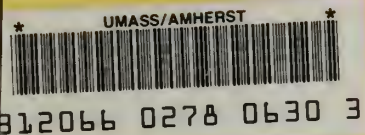


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VOCATIONAL EDUCATION AND WORKFORCE PLANNING INFORMATION REPORT 1980 WORCESTER LMA



LABOR AREA RESEARCH PUBLICATION

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VOCATIONAL EDUCATION PLANNING
AND
WORKFORCE INFORMATION REPORT
1980

WORCESTER, MASSACHUSETTS
LABOR MARKET AREA

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Introduction

The twin goals of vocational education are to provide students with valuable work skills leading to their rapid employment upon graduation and to supply needed manpower to area business firms. The equation relating these ends is seldom in balance and usually results in either significant unemployment or inordinate numbers of jobs which go unfilled. Hence vocational education must also seek to reduce potential unemployment by shepherding students into occupations which are relatively unaffected by recessionary forces while providing local industry with that mix of occupational skills which best promotes economic efficiency and optimal growth.

At present the balance in Central Massachusetts has swung so far toward unfilled jobs outstripping available manpower that the potential growth rate of the local economy has indeed been negatively affected. Furthermore, the imbalance has been so great that even a moderately severe national recession is unlikely to eliminate excess private sector demand for job skills either available in the present labor force or being taught in the region's vocational training schools.

In the pages which follow a number of surveys of the area's employment and educational institutions are used to catalogue various responses to this serious job demand to labor supply imbalance and to suggest still other ways to deal with it. At bottom, while the problems caused by deficient supplies of labor may not be as debilitating as those produced by deficient demand, they nevertheless produce far-reaching and deleterious effects on the region's long term economic future and every reasonable step must be taken to eliminate them.

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I. Recession-Resistant and Recession-Resilient Industries

A prime consideration in vocational education is that students not be trained for jobs that are overly sensitive to economic downturns without informed consent. Examining trends in employment over the 1974-1977 period helps indicate which industries, and by inference which occupations, are recession-resistant (not affected by cyclical downturns) and recession-resilient (recover relatively quickly from them). A compilation of the results of such an analysis for industries by 3-digit Standard Industrial Classification (SIC) Code in the Worcester Labor Market Area over this period is given in the following table:

Table I
Industrial Employment Trends By
3-Digit SIC Code and Their Interpretations
Worcester Labor Market Area (1974-1977)

Industry	SIC Code	Employment Ratios		Industry Designation
		1977 to 1974	1975 to 1974	
Drugs	283	1.33	1.27	Resistant
Misc. Plastics	307	1.23	0.83	Resilient
Cutlery, Hand Tools, Hardware	342	1.26	0.85	Resilient
Eating & Drinking Places	581	1.13	0.99	Resistant
Insurance Agents and Brokers	641	1.11	1.01	Resistant
Building Services	734	1.30	1.06	Resistant
Personnel Supply Services	736	4.98	3.43	Growth
Physicians' Offices	801	1.16	1.04	Resistant
Dentists' Offices	802	1.12	1.05	Resistant
Hospitals	806	1.10	1.01	Resistant

Source: ES-202

Independent studies of manpower use can help pinpoint which specific occupations are most likely to benefit in the future from the resistance or resilience to economic downturns the industries listed in the table exhibited in the 1974-1977 recession. Only those occupations suitable for vocational training will be examined, hence the building services industry, which uses mainly low skilled maintenance personnel, is not included.

Table II
Most Affected Occupations in Recession
Resistant and Resilient Occupations
Worcester Labor Market Area (1974-1977)

Industry	SIC Code	Most Affected Occupations
Drugs	283	Secretaries, Typists, Other Clerical Workers
Miscellaneous Plastics	307	Mechanics, Machinists, Secretaries, Other Clerical Workers
Cutlery, Hardware, Hand Tools	342	Mechanics, Secretaries, Other Clerical Workers
Eating & Drinking Places	581	Bookkeepers, Cooks, Food Service Workers
Insurance Agents and Brokers	641	Computer Programmers, Secretaries, Typists, Other Clerical Workers
Personnel Supply Services	736	Secretaries, Typists, Stenographers, Other Clerical Workers
Physicians' Offices	801	Medical Laboratory Technologists, X-ray Technicians, Licensed Practical Nurses, Secretaries, Typists, Other Clerical Workers
Dentists' Offices	802	Dental Hygienists and Assistants Secretaries, Other Clerical Workers
Hospitals	806	Medical Laboratory Technologists, X-ray Technicians, Licensed Practical Nurses, Secretaries, Typists, Cooks, Food Service Workers, Nurse Aide/Orderlies



The most striking features of the data contained in Table I are the extremely high ratios in the Personnel Supply Services Industry (SIC 736). Indeed they are so out of proportion with other ratios in the table that the industry is accorded the designation "growth industry", rather than "resistant" because it expanded so rapidly during and after the 1975-1976 economic downturn. This no doubt reflect the great shortage of clerical help of all kinds in the region at present.

Otherwise the data in both tables indicate steady and widespread demand for clerical help (in particular), nurses and other medical personnel, waiters, waitresses, and cooks, and machinists and mechanics in the manufacturing sector (though many who possess job skills in this last industry division may find themselves vulnerable to layoffs in future recessionary times). Further growth of the local economy, moreover, will serve only to intensify demand for workers in these occupational categories, making it imperative that local officials seek out ways to increase their relative supply in the years ahead.

II. An Analysis of Unfilled Openings on the Worcester Job Bank

Another way of pinpointing occupational areas of significant net demand is to tabulate specific occupations which have shown a large number of job openings on the Worcester Job Bank during Fiscal Year 1979 as listed by the Employment Service Automated Reporting System (ESARS). The tabulation shown on the following page lists such occupations which are suitable for vocational education and training:

Table III
Unfilled Job Openings Suitable
For
Vocational Education and Training
Worcester Labor Market Area Job Bank
Fiscal Year 1979

Occupation	DOT Code	Total Openings	Unfilled Openings	
			Number	Percent Of Unfilled to Total
Security Guard	372.667-034	232	91	39.2
Production-Machine Tender	609.685-018	135	19	14.1
Nurse Aide	355.674-014	130	22	16.9
Const. Worker I	869.664-014	91	19	20.9
Truck Driver, Heavy	905.663-014	81	5	6.2
Maintenance Repairer, Building	899.381.010	79	13	16.5
Auto-Service Station Attendant	915.467-010	71	18	25.4
Truck Driver, Light	906.638-022	61	10	1.6
Assembler Small Parts	706.684-022	45	5	11.1
Sewing Machine Operator	787.682-046	41	17	41.5
Cook	315.361-010	31	7	22.6
Secretarial Steno.	201.362-030	168	28	16.7
Survey Worker	205.367-054	154	35	22.7
Admin. Clerk	219.362-010	122	22	18.0
Bookkeeper	210.382-014	38	2	5.3
Accounting Clerk	216.482-010	35	5	14.3
Salesperson, General Mdse.	279.357-054	35	6	17.1

Source: ESARS Table 96

THE HISTORY OF THE
CITY OF BOSTON

Year	Event	Page
1630	First settlement of Boston	1
1634	First church organized	2
1639	First school established	3
1643	First public library	4
1650	First printing press	5
1664	First newspaper	6
1689	First city council	7
1703	First city hall	8
1711	First city library	9
1729	First city hospital	10
1735	First city court	11
1750	First city school	12
1765	First city office	13
1776	First city building	14
1789	First city street	15
1800	First city park	16
1815	First city bridge	17
1830	First city railway	18
1845	First city factory	19
1860	First city school	20
1875	First city office	21
1890	First city building	22
1905	First city street	23
1920	First city park	24
1935	First city bridge	25
1950	First city railway	26
1965	First city factory	27
1980	First city school	28
1995	First city office	29
2010	First city building	30

The table gives all Dictionary of Occupational Title (DOT) occupations which listed 30 or more total openings during Fiscal Year 1979 that were suitably trainable through vocational education courses. The last two columns are based on the number of openings which have gone unfilled 30 days or more. Employers hiring members of the six occupations listed on the bottom of the chart usually require job aspirants to have a high school diploma in addition to necessary job skills, a condition not generally true of the 11 occupations given in the top portion of the table.

The data in Table III are less useful for occupational planning than those given in other sections of this report for two significant reasons. First, Job Bank data do not represent a true cross section of occupational demand since there are many other ways for individuals to search for suitable employment than using public job services. Employment referrals from friends and neighbors, newspaper want ads, private employment agencies and school placement services compete very heavily with Division of Employment Security Employment Service job placement agencies, especially for white collar occupational placements. Along with this, many of the occupations listed in the chart do not offer better than average wages or chances for career advancement and may also be associated with dull, repetitive work and/or poor working conditions. In addition, some, like sewing machine operator, are in declining industries which may offer little if any long term job security.

Nevertheless, the information in the table does serve to reiterate conclusions derived elsewhere in the report, at least for the white collar occupations listed. There is an extreme shortage of clerical help of all kinds in the local labor market and area manpower planners must make strenuous efforts to deal with it effectively in the near future.

III. Vocational Education At Area Technical High Schools

A recent survey was conducted at the four technical high schools serving South-Central Massachusetts. The survey yielded complete course and grade enrollment figures for all vocational courses taught at the Worcester Vocational Technical High School, Assabet Valley Regional Vocational High School (in Marlboro), Blackstone Valley Regional High School (in Upton) and Bay Path Vocational High School (in Charlton). Cumulative totals for the four schools are given in the table at the end of the section.

Course name designations necessarily carry some degree of ambiguity since course content varies from school to school. In some instances different but related courses have been combined for purposes of clarity, with the result that all of the courses listed on Table IV were taught by two or more of the aforementioned schools. Food trades, electronics, auto body repair and plumbing were taught at only three of the schools, while commercial design, data processing, cabinet making and all other courses with total area wide current enrollment below 100 were being taught at only two of them.

Placement officials at each school maintain that successful graduates in virtually every skill trained are easily placed, and that demand is extremely heavy for those in machine trades and electronics. All of the schools are operating at capacity and offer separate evening school programs for adults, and these programs are also oversubscribed.

Table IV
Recent Graduates and Current Employment
OF
Four Vocational Technical High Schools

	Total Graduates	Current Enrollment by Class				
		1980	1981	1982	1983	Total
TOTALS	831	891	1,006	1,069	1,155	4,121
Machine Shop	84	86	105	120	134	445
Auto Technical	65	69	84	96	103	352
Carpentry	52	63	63	79	96	301
Metal Fabrication	45	69	79	62	87	297
Graphic Arts	60	54	59	81	80	274
Electrical Wiring	57	60	60	66	69	255
Drafting	49	47	58	71	69	245
Food Trades	35	49	60	54	52	215
Electronics	38	45	46	53	46	190
Auto Body Repair	34	38	41	54	55	188
Painting and Decorating	33	37	41	51	48	177
Commercial Design	28	29	31	34	38	132
Plumbing	28	29	29	38	35	131
Data Processing	24	25	35	35	31	126
Cabinet Making	27	18	31	29	31	109
Agriculture & Landscaping	22	23	23	20	34	100
Distributive Education	20	21	17	29	32	99
Small Engine Repair	20	17	21	30	31	99
Health Services	14	22	27	18	23	90
Cosmetology	31	38	38	0	0	76
Air Condition & Refrigerator	19	17	16	19	23	75
Dietary-Homemaking	25	18	18	9	30	75
Plant Maintenance	21	17	24	21	8	70

IV. Business Training and Vocational Education

Most vocational education in Massachusetts is offered in regional vocational technical high schools receiving state aid under chapter 74 of the general laws for vocational education. Other public schools can receive some chapter 74 aid if certain specified conditions are met, but their vocational education programs contain relatively fewer courses, and these concentrate mainly on distributive education. Courses oriented toward business education, however, are taught in virtually all public and private high schools, as well as in public and private junior colleges. Hence, it is much more difficult to get good data on the numbers of students pursuing programs leading to business careers, especially since it is not easy to determine whether students taking specific business courses intend to use the subject matter learned to get related jobs upon graduation.

A total of 9,916 Central Massachusetts students (76.2 percent of them female) had concentrated on business oriented "office occupations" programs during the 1978-1979 academic year, according to the Central Massachusetts Regional Education Center office of the State Department of Education (one of the six regional offices in Massachusetts). It is not certain how many of these students plan to pursue clerical and other similar careers, since some business education courses (such as marketing, accounting, business mathematics, computer programming and typewriting) are useful for other careers or for general education purposes. Others, such as recordkeeping, shorthand, clerical office procedures, key punch training, business machines use, and simulated office experience are less ambiguous. (A few, such as business principles and management and consumer decision making, are general courses intended for students in all programs of study.) What can be stated unequivocally, however, is that there is a severe shortage of qualified skilled clerical and related help relative to the number of existing job openings in the Central Massachusetts region.

The shortage of business students relative to need is due to several factors. First, industry of all types is booming throughout the region, caused, as much as anything, by an influx of "High Technology" firms in recent years. While the number of job openings has been growing by leaps and bounds, the number of high school age students has not-- mostly because of the passing of the population bulge resulting from the post-World War II baby boom. With competition for jobs declining, student motivation toward diligence and hard work has appeared to decline correspondingly. More important, the emphasis society has placed on higher education has produced an oversupply of individuals with college degrees non-specific to careers or in fields for which demand is declining. Higher education was perceived as the route for upward social mobility.

The pedagogical community, including school systems throughout the country, must accept partial responsibility in overemphasizing academic as opposed to vocational education, which is now generally in short supply compared to need. Vocational technical schools are able to accommodate only about ten percent of all high school age students in Central Massachusetts and are not allowed by chapter 70 of the State's general laws for vocational education to deal with business education. Only 25 to 35 percent of all of these students are currently taking prevocational or business related programs, with perhaps another 25 percent in college preparatory programs (and half of these students will ultimately fail to acquire college degrees). Thus overemphasis has been put on college preparatory coursework, thereby leading to 40 or 50 percent of all students failing to acquire useable job skills during their high school years.

Clerical and vocational work skills are currently in very great demand throughout Central Massachusetts, and there is every expectation that shortages will grow worse in the near future. Thus state manpower officials must make every effort to increase vocational education and workforce training throughout Massachusetts, and especially in Central Massachusetts, where net demand for manpower is greatest. Failure to do so could create persistent imbalances of occupational skills in the indigenous labor force, resulting in impaired industrial efficiency and preventing the economy from achieving its maximum growth potential in the years ahead. In addition, many individuals will be unable to actualize their full potential through employment.

V. Vocational Education By Worcester CETA

At present the Career Education Training Center located on Grove Street near Lincoln Square in Worcester offers 12 vocational training courses of instruction to economically disadvantaged local residents. For Fiscal Year 1979 a total of 415 enrollees took these courses, 276 of whom found suitable jobs through CETA referrals within one month after completing their studies (a placement rate of 66.5 percent). The placement rate of those successfully completing their coursework at the Worcester CETA facility was approximately 91 percent. Significant facts about individual courses in the program are summarized in the following table:

Table V
Courses Given By Career Education Training Center
(Worcester CETA)
Fiscal Years 1979 and 1980

Course Title	No. Of Weeks	Projected 1980 Enrollment	1979 Enrollment		
			Total Placements	Rate	
TOTALS	--	457	415	276	66.5
Patient Care Assistant	11	48	48	33	68.8
Ward Clerk	25	36	18	14	77.8
Secretarial	24	30	30	26	86.7
Keypunch	9	15	27	6	22.2
Bookkeeping	24	30	31	25	80.6
Secretarial/Bookkeeping	24	24	24	20	83.3
Clerk-General	16	60	62	32	51.6
Cooking-Hotel/Restaurant	16	60	59	31	52.5
English as a 2nd Language	25	50	51	36	70.6
Machinist-Tool & Die	32	44	23	14	60.9
Computer Technician	32	40	22	21	95.5
Electronic Technician	32	20	20	18	90.0

Source: Worcester CETA Consortium

Minimum age for training is 17 for all courses except tool and die machinists and the two categories of technician (the mean age of all students during Fiscal Year 1979 was 26). The minimum school grade level for enrollees is eight for cooks and English as a Second Language, ten for all the secretarial and clerical courses and twelve (or demonstrated equivalent proficiency in mathematics) for the machinist and technician courses.

Placement rates were quite good in general during 1979. That they were not even higher reflects not the lack of available jobs for graduates, but rather insufficient aptitude, interest, and/or motivation among those who failed to complete their courses. This in part also reflects the lack of appeal of some occupations taught because of low wage rates, poor working environments and inadequate chances for promotion , most notably for key punch operators. There is currently great demand for all of the occupational skills taught at the Career Education Training Center and all who complete courses successfully will be placed fairly rapidly. Therefore, the most important problem facing Worcester CETA coordinators is finding adequate numbers of enrollees to fill their classrooms each term.

By law all enrollees must be economically disadvantaged as well as currently unemployed. Being economically disadvantaged means the potential student must either have an income below seventy percent of an amount defined as a lower standard of living or must have low income and be handicapped, female, and/or a member of any of several racial or ethnic minorities. A recent survey by the Lawrence Berkeley Laboratory indicates a potential pool of some 23,500 enrollees in the Worcester CETA Consortium for Fiscal Year 1980. Because the Career Education Training Center combines extensive intake, career counseling, job training, placement and follow-up services it should be able to continue finding and serving the economically disadvantaged in the local area to the benefit of all concerned.

Since many of its enrollees are adults, the Center does not directly compete with the vocational technical high schools in the area. Area planners do suggest, however, that the program could be more effective if more courses were offered (thereby broadening its overall appeal), that some courses be made longer and more comprehensive and that a greater effort be made to publicize the CETA effort to the local business community, to induce at least some of them to initiate intern programs for CETA enrollees at area firms. If the funds become available, Center planners would like to initiate courses for electronic bench assemblers, word processors and computer programmers.

VI. Vocational Training By CETA Subgrantees

A. Marlboro

CETA Marlboro began to emphasize Job Training Operations over Public Service Employment (PSE) efforts some two years ahead of most of the other CETA organizations in the state. Thus, despite the relatively small size of the population in the area it serves, CETA Marlboro currently has more enrollees partaking of various training courses than either the Worcester or Boston Prime Sponsors. Its overall training effort is all the more remarkable because the subgrantee serves an area with the lowest unemployment rate in the state.

CETA Marlboro is able to function effectively precisely because of this unique situation. Though officially stated unemployment rates are indeed very low, there are nevertheless a substantial number of economically disadvantaged individuals residing in local communities who, for one reason or another, never seriously attempted to join the area's labor force. The CETA subgrantee's Comprehensive Training Program is designed to first increase the employability of these individuals through a series of Adult Basic Education, Remedial Education/General Equivalency Diploma and English as a Second Language (ESL) training courses. Only when enrollees are deemed to have acquired sufficient proficiency in these areas are they allowed to go on to specific skills training.

During Fiscal Year 1979 CETA Marlboro had a total of 367 individuals enrolled in 463 training slots. At the end of the Fiscal Year 157 (42.8 percent) had been placed in local area jobs, 104 (28.3 percent) were still in various phases of training and only 46 (12.5 percent) had dropped out of the program. The overall placement rate for those who completed training was 74.7 percent, but individual rates varied a great deal between programs. Since some specific courses begun in Fiscal Year 1979 have not been completed, it is not now possible to give complete placement rates for each individual activity, but the listing which follows provides a good indication of the relative size and effectiveness of the various programs which had been completed by the end of the fiscal year. Courses for STIP Keane Programmers, ESL/Bilingual Clerical Studies, Wang Computer Technician and Keefe Machinist were still in progress and therefore are not included in the table on the following page.

Table VI
Enrollment and Placements In
Completed Skills Training Programs
CETA Marlboro
Fiscal Year 1979

Course Title	Total Enrollment	Percent of Enrollments		
		Employed	Nonpositive Terminations	Transfers And Others
TOTAL COMPLETED	371	43.1	18.3	38.6
Clerical Beginner	44	38.6	36.4	25.0
Clerical Refresher	38	50.0	15.8	34.2
Clerical Bilingual	12	16.7	25.0	58.3
Word Processing	27	14.8	18.5	66.7
Keefe Automotive	13	53.8	15.4	30.8
T V Technician	14	64.3	35.7	0.0
Electro Mechanical Drafting	15	26.7	66.7	6.6
Graphic Arts (Keefe)	12	50.0	33.3	16.7
Gen. Radio Machine (Keefe)	12	66.6	16.7	16.7
Vision in Action (Media)	25	40.0	8.0	52.0
Electronic Module Assembly	11	45.5	0.0	54.5
STIP Prime Technician	33	48.5	9.1	42.4
STIP Gen. Radio Technician	42	35.7	9.5	54.8
STIP DEC/D.G.	31	96.8	3.2	0.0
STIP DEC/Wang Technician	42	38.1	11.9	50.0

Source: Marlboro CETA Consortium

The figures in the table differ somewhat from those listed earlier because only completed courses are included in the preceding table. The underlying strength of the program is indicated by the low overall percentage of nonpositive terminations (deceased individuals, dropouts and those who fail to find jobs upon completion of all prescribed training programs) during the fiscal year.

Placement rates tended to be higher for skills training in blue collar occupations, including those taught under CETA Marlboro auspices at the Keefe Vocational Technical High School in Framingham. Highest of all were the placement rates for the Skills Training Improvement Program (STIP) courses under Title III of the CETA Act. STIP courses are sponsored by area firms which have a hand in selecting (CETA eligible) students, determining the curriculum, assigning instructors and evaluating the program, though they are not obligated to hire its graduates. Local participating companies include the Digital Equipment Corporation (DEC), Data General (D.G.), General Radio (Gen. RAD), Prime Computer, Wang Laboratories and Keane Associates.

The overall success of the program, high local demand for technicians and other occupational classifications and a large number of requests by qualified local individuals for CETA training bode well for the continued success of the CETA Marlboro skills training program. Program officials would like to provide more courses in basic electronics, in the assembly, operation and repair of computer modules, and in technical writing. However, even if funds for these courses are not forthcoming, CETA Marlboro should continue to successfully provide a large additional pool of skilled manpower to a labor starved local economy.

B. Hopedale

Hopedale CETA is now in the process of completely changing its orientation from PSE to Job Training. Unemployment rates remaining far above full employment levels in several of the consortium's constituent towns and a marked dislike for inconvenient job commuting away from home among local residents have inhibited job training in the area. Of late, however, labor markets have become tight enough to induce Hopedale CETA to initiate training programs in several vocational skills.

In 1979 the consortium offered a 20 week computer technician course, enrolling 15 individuals in two separate sessions. All those enrolled completed the course and 14 were successfully placed in jobs, with the 15th being accepted into college.

Within the next few months consortium officials plan to start several new courses. Enrollments are projected to be 40 in woodworking, 20 in secretarial studies and 10 apiece in plant maintenance, welding, computer programming and a data entry/computer operator course. All students will be CETA eligible economically disadvantaged individuals, many if not most of whom are not currently participating in the local labor force.

Plans for Fiscal Year 1981 and beyond include expanding Hopedale CETA's job training effort to include courses in health fields, day care and machinery. Plans also include initiation of programs of internship in small local businesses. All programs will be contingent upon future labor market needs in the area, and will be based, in particular, on requests from individual firms for specific occupational training.

C. Southbridge

Before April 1979, when the Southbridge CETA Skills Center located on Brochu Street opened, skills training programs were taught in the town hall and at Bay Path Regional Vocational Technical School in Charlton. Classes at the school had to be taught at night, making it difficult to recruit qualified teachers and causing an inordinately high dropout rate. This difficulty was eliminated upon the opening of the subgrantee's present facility and total enrollment, which was 68 in Fiscal Year 1978, has now expanded to 94 projected for Fiscal Year 1980.

At present the Skills Center has 28 individuals taking secretarial training, 24 in culinary arts, 36 in the machine shop and 6 pursuing individuals skills training programs at various schools. Placement rates have been impressive, but actual percentages are difficult to arrive at because of transfers of students between courses and into on-the-job training (OJT) programs. (OJT enrollment is projected to be 33 for Fiscal Year in 1980).

Along with these major programs Southbridge CETA also offers a number of auxiliary courses of instruction. Current enrollment in the subgrantee's Hispanic and Southeast Asian ESL classes is 34. A total of 39 are engaged in Work Experience /General Educational Development (WE/GED) courses designed to prepare students for transfer to Skills Training and OJT programs after having them work awhile at on site projects for public agencies. In addition 6 handicapped adults are

enrolled in a Transitional Opportunities for Placement (TOP) program which provides work experience training for them as commercial/industrial cleaners and kitchen helpers. A Youth Employment and Training Program (CETA Title IV) called Basic Occupational Access and Training (BOAT), moreover, currently allows the Oxford School Department to provide 13 dropouts with the opportunity to pursue a high school diploma in conjunction with skills training in any of several vocational areas. Finally, Southbridge CETA has undertaken a STIP program, to be sponsored by Simplatrol of Webster, to teach a projected 12 enrollees machine operation and set-up in a course scheduled to begin later in the year.

For the future the subgrantee plans to emphasize the implementation of a number of Private Industry Councils (PIC's) which effectively allow specific firms to provide CETA enrollees on site on-the-job training at CETA expense. Southbridge CETA officials would also like to conduct training programs for Licensed Practical Nurses (LPN's) and nurse aides in conjunction with Hubbard Hospital. More importantly, they would like to enhance their emphasis on all programs involving private industry, most notably those involving STIP, OJT and PIC programs.

The Southbridge CETA subgrantee is located in what is basically a rural area and one which does not have access to a major transit system. Thus many prospective enrollees have difficulty commuting to training programs. Moreover, graduates who do not have automobiles cannot easily get to jobs in Worcester or Springfield. Providing better transportation within the subgrantee area and between it and other parts of the state would be a key ingredient in permitting Southbridge CETA to improve upon the admirable record it has compiled in skills training during the past three years.

VII. Other Vocational Training Programs

A. Worcester Industrial Technical Institute (WITI)

Worcester Industrial Technical Institute (WITI) is a post-secondary school vocational training institution specifically designed to give general course high school graduates and adults as a whole a second chance to acquire technical training. Students are older, more mature (many have served in the military) and better able to evaluate their needs, skills and career prospects in various occupations. In a period of severe labor shortages in technical areas, WITI has a vital role to play in training skilled workers so greatly needed by local industry.

At present WITI teaches nine (9) technical courses. Standards are exceptionally high, generally rated to be among the best in New England. Placement rates average over 95 percent and almost all of those not placed in immediate jobs enter college instead. As is the case for Worcester Vocational Technical High School, the major difficulty WITI faces is finding sufficient numbers of qualified and motivated students, especially in metals technology. However, while some dropouts occur due to enrollees inability to handle the material taught, most attrition occurs because students leave school to take jobs before graduation.

All new programs at WITI must first be approved by the school's Board of Directors, which is heavily represented by local industry, and then by the State Education Department's Division of Occupational Education. Students' tuition is fully reimbursed by the state, which also sets teacher qualification standards. As at all vocational schools, instructors at WITI must have six years of recent on-the-job experience in the skills they teach and must also remain knowledgeable about current developments in their fields, usually by periodically returning to their jobs in industry.

The school's nine courses of study, together with recent graduates and current enrollment by course are shown on the following page:

Table VII
Recent Graduates
And
Current Enrollment By Course
Worcester Industrial Technical Institute
1979

Course Title	1979 Graduates		Current Enrollment	
	Number	Percent Of Total	Number	Percent Of Total
TOTAL	115	100.0	372	100.0
Data Processing	20	17.4	73	19.6
Electrical Power Technology	4	3.5	15	4.0
Industrial Electronics Technology	24	20.9	68	18.3
Machine & Tool Design Technology	18	15.6	90	24.2
Electro-Mechanical Technology	10	8.7	23	6.2
Architectural Engineering and Building Construction Technology	10	8.7	38	10.2
Ophthalmic Dispensing Technology	17	14.8	33	8.9
Welding Technology	8	6.9	17	4.6
Metals Technology	4	3.5	15	4.0

It should be kept in mind that all of the above figures reflect attrition due to students leaving school to take jobs in the fields studied. About 90 percent of the enrollees have outside jobs in any case.

WITI would like to attract more minority and female students (most of the few women now at WITI are taking data processing, drafting and optics courses). The school operates on a small budget and often accepts gifts of old machinery from local industry. It has no plans to expand at present.

If funds were to become available, officials at WITI would like to institute courses in air conditioning and refrigeration and quality control; in addition they would like to teach existing courses more intensively. Beyond this it would like the general community to become more aware of and take more interest in vocational education, especially at WITI, and given its record of success, it cannot be said too strongly that other communities should seriously consider beginning their own "second chance" technical schools.

B. Quinsigamond Community College

Quinsigamond Community College is the only one in the area of 15 such institutions in Massachusetts. They differ from junior colleges only in their accessibility to students. Community colleges do not require high school diplomas or Scholastic Aptitude Test scores of prospective enrollees, but they award the same Associate of Arts and Science degrees and health program certifications as junior colleges. They also provide numerous developmental and remedial courses in reading, mathematics and languages. Community colleges are basically open door institutions providing students with courses of study leading to immediate employment in any of several vocational, technical, and business -related occupations as well as to associate's degrees qualifying graduates for transfer to senior colleges.

Admissions officials at Quinsigamond Community College estimate that approximately one-fourth of those presently enrolled are on welfare. Basic Educational Opportunity Grants (BEOG's) are available to these people and others with somewhat higher incomes, as BEOG qualification income limits are significantly higher than those required to qualify for economically disadvantaged status for CETA training purposes. Individuals may also be qualified to receive Higher Education Grants as well. The school will in all cases help individuals apply for all of the aid funds that they are eligible to receive.

Of the 14 degree programs currently taught at the school, three, Basic Engineering, Business Administration, and Liberal Arts are more or less specifically designed for students expected to transfer to senior colleges upon graduation, nor can they be fairly described as vocational course programs of the type discussed in the other sections of this report. Two other course programs, Business Data Processing and Computer Maintenance Technology are in such vocational technical areas, but are new this year and no information is available on their current enrollment levels (new courses in retail selling and recreation management are also being considered). Total 1979 graduates as well as the number of incoming freshmen for the 1979/1980 academic year are listed for each of remaining programs in the following table:

Table VIII
Recent Graduates and New Enrollment
In
Health and Business Vocational Programs
Quinsigamond Community College (1979)

Program Title	1979 Graduates		New Enrollees (1979)	
	Number	Percent Of Total	Number	Percent Of Total
TOTAL	433	100.0	726	100.0
Dental Hygiene	20	4.6	41	5.7
Nurse Education	80	18.5	139	19.2
Occupational Therapy Assistant	42	9.7	62	8.5
Radiologic Technology	25	5.8	32	4.4
Respiratory Therapy	25	5.8	37	5.1
Business Technology	75	17.3	173	23.8
Early Childhood Associate	36	8.3	61	8.4
Electronics Technology	30	6.9	64	8.8
Executive Secretarial	100	23.1	117	16.1

In the future college officials hope to transfer their emphasis from liberal arts and professional education (which had a total of 1,403 new enrollees as of September 1979) to vocational education programs. They especially want to provide more programs in High Technology areas and to find ways of helping to meet other manpower needs of the local business community. Placement rates of successful graduates is already close to 100 percent and the school is currently looking into ways of establishing more cooperative education work-study programs.

School officials are also searching for ways to increase enrollment at the college. They believe Central Massachusetts needs to develop a central intake system showing individuals who need education and/or training what options they have available to them and how they can obtain the financial aid they need to pursue them. Currently CETA, vocational technical schools, community colleges and junior and senior colleges compete to enroll individuals in their particular programs and often fail to inform them of available alternative programs. A centralized intake clearing house would better advise individuals in need of the counseling education and training, and financial aid options available to them. This would be of particular help to "displaced homemakers", who reenter the labor force long after leaving it to bear and raise children, and to welfare mothers with young children who can acquire vocational training part-time and be available for full-time skilled work when their children reach school age. These and other individuals should be given every opportunity to acquire the job skills necessary to qualify them for satisfying technical and business careers in their local communities.

C. Junior and Senior Colleges

As was touched upon in the previous section, virtually all junior colleges offer a wide array of technical and business related course programs (of local schools, this is particularly true for Worcester Junior College and Becker Junior College). Beyond them lies a gray area where technical and professional skill requirements merge and students who are pursuing professional degrees in health, business, or engineering may decide to drop out of school and use the skills they have learned in vocational or technical careers. Liberal arts majors can also use the technical and science courses they took along the way for similar goals. While it is no doubt true that the greatest occupational shortages projected for the years ahead will be for engineering professionals, especially electric/electronic engineers, those who drop out along the way to qualifying for such careers will still have acquired valuable technical skills which will serve them well. In Central Massachusetts especially where all skilled manpower is in such short supply it is imperative that every individual receive all of the professional, technical and vocational education and training that he or she can profitably absorb, and all public policies must be tailored to achieve this end.

VIII. Summary and Conclusions

In diffusing westward from Route 495 to the cities and towns in and around Worcester, the High Technology industry has created exceptional demand for all types of skilled manpower in Central Massachusetts. Indeed the industry has siphoned off available pools of labor so efficiently that extraordinary efforts are required to keep it and the other industries in the region adequately staffed.

It would not be exaggerating too much to say that the best way to analyze this excess labor demand situation in Central Massachusetts is by comparing it with wartime conditions requiring full manpower mobilization and asking where and how additional skilled personnel can be obtained for the region's labor markets. Net demand is so great that even a moderately severe recession is unlikely to diminish it greatly, for firms will find it necessary to "stockpile" skilled labor for fear of not having it available when economic conditions improve. Also because the High Technology sector does not mass produce goods or sell them to individual consumers (concentrating instead on universities, hospitals, government agencies and other firms) It is thus no more likely to be adversely affected by an economic downturn than it was during the last recession, when it remained for the most part buoyantly healthy. Taking a longer view, High Technology growth in the region appears all but inevitable, so that those who acquire skills now in short supply in the job market should not be significantly impacted by layoffs during their working careers. Hence the experience of the last recession cannot be taken as a prediction of what will happen to occupational demand during future downturns because labor demand during the mid-decade recession had not at that time been stabilized by the strong influence of the High Technology sector on regional job markets.

In dealing with labor shortages for technicians, skilled tradesmen and skilled clerical workers, regional vocational technical schools and public high schools are doing all that could be asked of them; their impressively high placement rates for graduating students bear unquestionable witness to this fact. Course selection is strongly influenced by input from the business community throughout Central Massachusetts and schools are quick to institute new courses where indicated and just as quick to drop others with disappointing placement rates. The schools are not limited by their enrollment capacity as much as by the relative scarcity of capable and motivated students. CETA organizations throughout the region are also tied into the needs of the business community and are doing an outstanding job of recruiting and training economically disadvantaged individuals, who had not previously possessed useable job skills and hence had not been participating in the region's labor force.

Additional labor can come from a number of sources, but none, with the possible exception of the central intake system for those in need, are easy to activate. Motivating more students to seek careers in vocational technical and clerical occupations requires widespread changes in state-wide educational practices as well as in occupational attitudes of students and of the general population. Inducing more economically disadvantaged individuals to seek training through CETA should be an easier task, as those organizations have already demonstrated, but increased effort should be made to recruit more women (perhaps with a centralized intake clearing house) into training programs (this now now being alternatively attempted through several pilot programs now operating in Worcester). The business community can cooperate by establishing "mothers' hours", flexitime, and partnering. Some older workers may be persuaded to consider post-retirement careers. Another source of additional manpower could be tapped by developing and improving road systems to adjoining labor areas, improving rail service and providing long distance public or mass transit buses (although this method is hampered by a dislike of commuting any but the shortest distances exhibited by many individuals living in some of these areas, most particularly by residents of the Blackstone Valley bordering Rhode Island). A final way of increasing available skilled labor pools would be to encourage migration from other parts of the state and country and/or from abroad, a problematic solution which could lead to overcrowding, changed life styles, and other perhaps unfavorable social and economic adjustments.

Skilled labor shortages in Central Massachusetts are serious and not likely to be short-lived. In essence the region is undergoing the growing pains of transforming itself from a traditional industrial structure to one dominated by High Technology and Professional Service industries. As with all systems in transition, the imbalances thus created can be disconcerting and difficult to deal with in the short run, but the end result of better and more secure standards of living for all concerned should be well worth the present dislocations these changes are now causing.

A P P E N D I X

Energy and Nonenergy Intensive Industries

<u>Industry</u>	<u>Occupations in the Industry For Which Vocational Education/ Technical Training is Desirable</u>
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Nonenergy Intensive Industries

Fabricated Metal Products	Drafter, Engineering Technician, Machinist, Machine Tool Operator, Electroplater, Tool & Die Maker, Punch-Press Operator, Drill-Press Operator, Lathe Operator, Grinding Machine Operator, Sheet Metal Worker, Welder, Filer/Grinder
Nonelectrical Machinery	Drafter, Electronic Technician, Tool and Die Maker, Machine Tool Operator, Drill-Press Operator, Lathe Machine Operator, Maintenance Mechanic, Welder, Filer/Grinder/Buffer, Secretary
Electrical & Electronic Machinery	Machine Tool Operator, Machinist, Tool and Die Maker, Electroplater, Tester, Welder, Electronic Wirer, Electronic Assembler, Secretary, Typist
Instruments	Electrical/Electronic Technicians, Machinist, Machine Tool Operator, Machine Operator, Instrument Assembler, Accounting Clerk, Secretary, Typist

Energy Intensive Industries

Paper and Allied Products	Industrial Truck Operator, Machine Setter, Paper Machine Winter, Slitting Machine Operator, Press Operator, Secretary
Chemical and Allied Products	Science Technicians, Maintenance Mechanics, Chemical Operator, Mixer/Blender, Grinder Operator, Accounting Clerk, Secretary, Typist
Primary Metal Industries	Machine Tool Operator, Machinist, Filer/Grinder/Buffer, Molder, Inspector

Syllabus of Studies in the Vocational Education Field

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2. "A Description of the Methodologies of Data Sources Used in Constructing the Preliminary Occupational Demand-Supply Table for the State of Massachusetts" - a Research Paper prepared by Christine Le Cam and Andrew Sum of the Research and Program Development Unit of the State Department of Manpower Development. February 1978
3. "Employment Requirements for Massachusetts by Industry 1970-1985," 1976 by O.E.S. Unit of the Occupation/Industry Research Department D.E.S.

Similar studies are also available for the ten large LMA's.

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5. "Characteristics of Applicants Registered in Employment Service Offices and Selected Employment Service Activities Massachusetts," cumulative October 1978 through June 1979. Issued by Labor Area Research Department of DES.
6. "Issues in the Development of a Comprehensive Occupational Information System for Planning Employment and Training Programs at the State and Local Level: Current Research Efforts within the State of Massachusetts" by Andrew Sum, P. K. Sawhney, and Irwin Herrnstadt, a report prepared for the Fifth Annual New England Business and Economic Development Conference, Wakefield. 1977
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9. "An Inventory of the Labor Market Supply Generated by Secondary and Post-Secondary NonProfessional Education Institutions"; by Lowell University's Department of Economics.
10. "Matching Occupational Classifications to Vocational Education Program Codes", U. S. Department of Labor, BLS, Washington, 1975
11. "Matching Occupational Supply and Demand Data With State and Labor Markets: Alternative Methods for Allocating Vocational Education Program Graduates Among Their Related Census Occupations" - by Christine Cormier, Andrew Sum and P. K. Sawhney. A report prepared for the Mass. DES.
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14. "A Taxonomy of Instructional Programs in Higher Education" by the National Center for Education Statistics, U. S. Office of Education. Department of H.E. W., 1970.
15. "Standard Terminology for Curriculum and Instruction in Local and State School Systems", U. S. Office of Education, State Educational Records and Report Series, 1970.
16. "Matching Occupational Classifications to Vocational Education Program Codes", U. S. Department of Labor, BLS, Revised, 1975.
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18. "Vocational Education and Occupations", U. S. Department H. E. W. and U. S. Department of Labor, Washington, 1969.
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21. "Manpower Data Packages for Planning Employment and Training Programs Based Upon the 1976 Survey of Income and Education" for the State Department of Manpower Development, June 1978.
22. Same study as in 21, and for the Springfield SMSA.
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24. "The Role of Unemployment - Insurance Based Data Source in Planning Employment and Training Programs at the Local Level," July 1978, Russell Ganz and Andrew Sum, DMD.
25. "Issues in the Development of a Comprehensive Occupational Information System for Planning Employment and Training Programs at the State and Local Level: Current Research Efforts Within the State of Massachusetts", - Research and Program Development, Department of Manpower Development and the Department of Economics, Northeastern University, October 1977.
26. "Employment Requirements by Occupation, by Industry, 1976-1985, by Job Market Research, Mass. DES, December 1979.
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28. Vocational Education Planning and Workforce Information Report for Boston SMSA, published 1980.
29. Similar Report for Brockton SMSA.
30. Similar Report for Fall River LMA.
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32. Similar Report for Lawrence-Haverhill SMSA.
33. Similar Report for Lowell LMA.
34. Similar Report for New Bedford LMA.
35. Similar Report for Pittsfield LMA.
36. Similar Report for Springfield-Chicopee-Holyoke LMA.

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Other information and reports available from the following sources:

57. Educational Resources Information Center (ERIC)
National Institute of Education
1200 19th Street N.W.
Washington, D.C. 20208
58. National Center for Research in Vocational Education
Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

This center contains an extensive Research Library and also the ERIC (see item 57 above) Clearinghouse on Adult, Career, and Vocational Education.

59. National Center for Education Statistics
400 Maryland Avenue S.W.
Washington, D.C. 20202



